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ABSTRACT

Designed to accompany the preceding student text (which deals with the role of corn in the Seneca, Pawnee, and Hopi tribes), the teaching guide contains a suggested sequence of activities and needed supplementary information along with an indication of the student text they follow. Sections include: farming notes; basic needs activities; house descriptions; Navajo and Pueblo farming; matrilineal descent activity; summary matrix and discussion questions comparing the way the Seneca, Pawnee, and Hopi tribes grow and preserve corn; oral history; answers to concluding questions; and seven "corny" games. (AH)

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INTRODUCTION TO TEACHER'S GUIDE

The following activities and information have been developed to supplement the student's text. Here is the suggested sequence of activities and needed supplementary information along with an indication of the student text they follow.

		SECTION & PAGE CORRESPONDING IN STUDENT'S TEXT
5	Farming Notes	Stalk g the Answer, Pg. 8
6	Basic Needs Activity	Five Main Kinds Of Corn, Pg. 10
8	House Descriptions	Additional information for Basic Needs Activity in Teacher's Guide
9	Navajo and Pueblo Farming	Hopi Cultivations, Pg. 14
11	Matrilineal Descent Activity	Seneca Lifestyle, Pg. 43
16	Summary Matrix ..... and Discussion Questions Comparing ways Seneca, Pawnee and Hopi grow and preserve corn.	Use after all 3 tribes "growing and preserving methods" have been covered.
20	Oral History	Additional information for teachers to acquaint themselves with before covering legends.
22	Answers to Concluding Questions	Conclusion, Pg. 59
23	Corny Games	To supplement student text.

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Corn and Beans

The great corn plant is with the bean,
Its rootlets now are with the bean . . .

There are some very good reasons for planting beans and corn together. Corn planted alone takes some of the best plant food out of the soil. Beans help put some of that food back in. Growing beans with corn keeps the soil rich and good for planting. Here is how it works:

Plants need food just like people do. They make their food from sunlight, air, water, and soil. One food that all plants need in order to grow is called *Nitrogen.* Although there is nitrogen in the air, plants must take their nitrogen from the soil. Most plants, like corn, use a lot of nitrogen. But beans and a few other plants help return nitrogen to the soil.

Their roots are the home of a special kind of *bacteria.* Bacteria are also plants, but they are so small that you could put more than a million of them on the head of a pin. The kind of bacteria that live in bean roots take nitrogen from the air and use it in their own bodies. When they die, the nitrogen goes into the soil and can be used by plants.

Beans, alfalfa, soybeans, and peanuts are all plants with *nitrogen-fixing bacteria.* These plants are called *legumes.* If you look at the roots of a legume you can usually see small whitish lumps where the bacteria live.

Today many Navajos grow alfalfa instead of beans to help put nitrogen into their soil.

Companion planting

Food

Not all of the crops that Indians grew were planted by every tribe. But at least three important crops were planted for food by tribes in many different places in both North and South America. These are the three crops that Home God sings of planting in his field.

The white bean and the great corn-plant
are tied with the white lightning.

The white bean and the great squash
Are tied with the rainbow.

Corn, Beans and Squash. Indian farmers have planted these crops together since the beginning of time. They learned very early that these plants help each other to grow. Together, they also make up a good diet.

Your body uses food in three ways. It needs food for energy the way a car needs gas. It needs food for building muscles and bone and keeping them in shape. Vitamins in food keep everything running smoothly like oil does in an engine.

The energy in food is measured by calories. The more you work, the more calories you need. People grow corn because it is one of the world's best crops for calories.

But your body also needs to build muscles and bone. For that it needs *proteins* of several kinds. Beans and squash (especially squash seeds) have many of the proteins you need. Corn does not have a lot of proteins, but luckily it does have the kinds that beans and squash don't have enough of. Beans, squash, and corn together have all the proteins the body needs.

Corn doesn't have many vitamins, but beans and squash do, so they help in that way, too. Corn, beans and squash are like pieces in a puzzle. People learned a long time ago to put them together to make a complete diet.

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Basic Needs Activities

We've tried to get a feeling of different places, shape of the land and the way the water flows on it. We've even tried to find good places for corn fields. All this is helping us to put ourselves in the Indian farmer's place. But to do that, to try and understand what their life was like we must try to forget the lives we are living today.

We must forget that we get most of our food from the grocery store and that much of it has already been processed in some way, for us. We must forget that practically all of our clothing has been made for us as well as our houses, our cars, bikes, our beds and even our toys. We must forget these things if we want to imagine what it was like to live as an American Indian farmer a long time ago.

Then, Indian people used the things that nature provided for their daily needs. Hunting, fishing, gathering, trading and farming gave them food. They had to make their own homes, clothing, tools, utensils and other things they needed from the plants and animals that lived in the same places they did.

Here is a description of the regions where the tribes live and the natural resources there are in those areas. (See Natural Resources). Think about being a member of the Seneca, Hopi or Pawnee tribes. Pick a tribe and think about what it would be like to live in that place with the other members of your tribe. What would you eat? How would you get it? What would you use to shelter you from the elements? How would you travel? What would be important to you?

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NATURAL RESOURCES

HOPI *Southwest region*

Topography mountains, deserts, mesas, plateaus, lava mounds, sand dunes.

Climate extremely hot days and cold nights, no rain most of the year, annual rainfall 10-13 inches. When it rains it usually floods.

Plants mountain forests of yellow pine, pinon and juniper trees, desert sagebrush, cacti, ironwood, greasewood.

Wildlife peccaries (wild hogs), squirrels, jack-rabbits, roadrunners, screech, elf and other owls, gila monsters, mountain lions, prairie dogs, antelope.

SENECA *Northeast region*

Topography many different types of landforms, lakes, streams, river bottoms,valleys, some steep slopes, rounded mountains.

Climate much rain, annual rainfall 32-45 inches, three months of mild summer, winters cold and wet.

Plants large variety of plants, many hardwood forests with: oaks; elm; maples: sycamores; walnuts; hickories, and other types of trees, evergreen trees in mountains and hills.

Wildlife deer, bear, wolves, beaver, fish, rabbits, squirrels, raccoons, muskrat, duck and other water fowl.

PAWNEE *Plains or midwest region*

Topography mostly flat, some hills, Platte river and associated small streams

Climate dry, annual rainfall 12-18 inches, hot summers, cold winters.

Plants vast grasslands, some trees along the river and streams (willow, cottonwoods, oak and elms) some brush and shrubs)

Wildlife buffalo, antelope, bear, deer, rabbits, coyote, wolves, waterfowl and other game birds, prairie dogs.

HOUSE DESCRIPTIONS

—SENECA—

Longhouses -Rectangular structure of poles and sheeted elm bark. 50-150 feet long and 18-25 feet wide. Length depended on number of families living inside. The high roof was arched and painted above the door. At each end was painted the crest of one of the 8 Seneca clans (i.e., Bear, Wolf, Beaver, Turtle, Deer, Snipe, Heron, Hawk).

No windows, but smoke holes in roof with sliding panels shut at least partially during heavy snow or rains. Fires were built about every 12 feet. Special platforms built on the right and left were piled with bearskins used for sleeping. (These platforms were like bunkbeds.) Some of these platforms were used for storing heavier materials such as pots, cradleboards and weapons. On walls and rafters were hung braids of corn, strings of dried apples and squash, hanks of tobacco, and bundles of roots. Many fires in one building for warmth, the large overlapping shingles kept out weather. Firewood was abundant, thus no insulation needed for house.

Lots of storage space to keep food, etc., dry from rain and snow. Many materials hung from rafters, the dryest, warmest place.

—HOPI—

Pueblos -are structures similar to apartment buildings in that family dwellings are built on top of and adjacent to one another. They are built of stone and then plastered with mud. Rooms were added as needed.
Hopi dwelling has a single room, divided into storage and work area while the smooth clay floor is used for sleeping. Walls are adobe, and the ceiling is made of brush and grass, supported by heavy beam. These beams were made of wood, a scarce material. Beams might last for certuries and were often re-used when new homes were built.

—PAWNEE HOUSE—

Tipis and earth lodges

Earth Lodge -large dome shaped with earth covered hall-like entry way (vestibules). Built of logs and covered by layers of dirt and grasses, (i.e., sod construction). Thick layers of tangle-rooted soil were excellent insulation against bitter cold of winter and intense heat of summer. Dug into earth so part of the lodge was underground.

Tipi -made of neatly dressed buffalo hides with hair removed. Hide set on long slender poles about 16 feet long. Smoke hole at top with flaps (wings) at either side to control size and direction of smoke exit. Slept close to walls with small fire and pot in center. The flaps closed in bad weather.

Navajo & Pueblo Farming

Hopi corn is hardy. It can withstand the extremes of temperatures and moisture in the desert. The seeds are planted deep, 12 to 16 inches below the surface, and the roots may grow down several feet in order to reach the damp soil below. How else might a deep root system help the Hopi Corn? What else besides a flood might topple a plant? Just like on the ocean, strong winds can build up as they move across the large flat desert. A deep root system anchors the corn plants into the soil and helps them stay erect during strong winds.

Just like flooding, the wind can prove to be a friend to the corn crops. In Hopiland most winds come from the southwest.

Wind blows the desert sand northward until it reaches the southern edge of the mesa, where the sand forms dunes. Sand is very *porous*, which means water runs through it easily. Water accumulates in the soil beneath the sand, where the hot sun cannot easily evaporate it. Corn plants planted here can receive moisture even during seemingly dry conditions. This is called *dry farming.*

Flooding--Fiend or Friend

In some years the Hopi have no rain, their springs dry up, and their crops fail. At other times their crops are destroyed by flooding and covered by *silt* carried by floodwater. Some flooding is not necessarily bad. In fact, one type of farming the Hopis practice is called *floodwater farming.* In this type of farming, corn is planted near the banks of a stream. What would happen if a heavy snowmelt or storm occurred? Some Hopi fields are planted at the mouth of an *arroyo,* a steep-sided gulch or channel that branches off a stream that is often dry.

When heavy rain falls, existing streams may flood along their banks. Temporary streams may fill, causing water to spread out from the mouth of arroyos and water nearby crops.

Planting Some Final Seeds

As you can see, conditions in the area where the Hopi live are often harsh. Would it make sense to always plant in the same places from year to year? What would happen if a Hopi family had only one plot and their crop was destroyed by a flood or the arroyo they depended on never filled with water? We'll find the answers to these questions later, when we learn more about the cultivation practices of the Hopi.

Developed by Lynne Givler

Another Southwest tribe that is made up of farmers is the Navajo. The Navajos live near the Hopi people and they share some of the same agricultural methods. The Rock Point Community School in Chinle, Arizona, has developed a good book called **Navajo Farming,** written by Janet and Sam Bingham. This book covers traditional and contemporary Navajo and Pueblo farming methods, including the Navajo Indian Irrigation Project. Throughout the book interesting activities that teach about the Navajo and Pueblo people are offered. The book culminates in a challenging "Farm Game" where the students learn to run a 10,000 acre farm! The following pages are activities that have been taken or adapted from Navajo **Farming.**

You can get a copy of **Navajo Farming** by sending a check for $7.50 written to Rock Point Community School, Chinle, Arizona 86503.

(Used by permission, Navajo Farming, *by Janet and Sam Bingham, Rock Point Community School, 1979)*

Soil Science: Sand, Clay, and Silt

You can easily see how much of your soil is sand, clay, or silt:

-Get a large glass jar and fill it part way with dry dirt. (Break up all the lumps.)

-Fill the jar with water. (If you have some, add two teaspoons of soap like dishwasher soap or Woolite that doesn't make suds.)

-Shake or stir the mixture; then let it sit for a day or so.

First the heavy sand with the biggest grains will fall to the bottom, then the lighter sand and silt, and last the clay. Some of the clay might stay in the water until it dries.

The best soils will have about these amounts of sand, silt, and clay.

20% clay

30-50% silt

30-50% sand

If more than 1/3 of your soil is clay, it has too much clay.

If more than 3/4 of your soil is sand, it has too much sand.

Where Should a Cornfield be Planted?

The location of a cornfield was based on a knowledge of the corn plant and its basic needs. The form of the land often determined where shade and sunlight would fall, where streams would flow, and even how deep the soil might be. The Native American's understanding of corn had to be combined with a good understanding of the land---its limits and its resources.

Dry Weather Tricks

Traditional farmers use many tricks to save water and make sure that their crops get enough. Scientists and farmers from other parts of the world are learning much by studying these old Navajo ideas. All Navajo farmers of course don't farm in exactly the same way. Anyone you ask might have his own ideas.

Deep Planting

All corn is not the same. Most corn seed will not come up if it is planted deeper than 5 inches. However, there are SOME kinds of Navajo corn that can be planted ten inches deep or more and still grow. Some farmers planted in a hole one foot deep where the soil stays wet long after soil 5 inches down has dried out. They had to have special seeds to do that.

You can test the corn seed used in your area to see how deeply it can be planted.

A variation on this planting activity is to use traditional corn that different tribes of the country raise. See page for people to buy native corn from or contact specific reservations.

Put a plastic garbage bag in a box at least 15 inches deep.

Fill the box with damp sand (regular soil may pack too tightly or unevenly). Plant seeds as you go and mark the box to show each seed.

Keep the box damp and warm for 4 weeks. Then check all the seeds carefully.

MATRILINEAL DESCENT ACTIVITY

We have learned that many tribes are divided into clans. Each clan usually takes the name of a plant or animal which is very important to the clan's history. In the Seneca tribe, the clan includes the Clan Mother's unmarried brothers, younger sisters, their husbands and children. This system of relations is called *matrilineal descent.* As you remember, all the people in a clan live together in the clan's Long-house. In Seneca culture, people are not permitted to marry within their clan.

To understand matrilineal descent, we're going to trace the relationships in 3 simplified clans. We'll do this by examining the families that make up the clans. The families will be shown in diagrams. We'll start out with *Figure One* which shows the 3 clans; the Elk Clan, the Oak Clan, and the Snake Clan. The Clan Mother and her husband are shown in each clan. Also shown are their children who make up the first generation.

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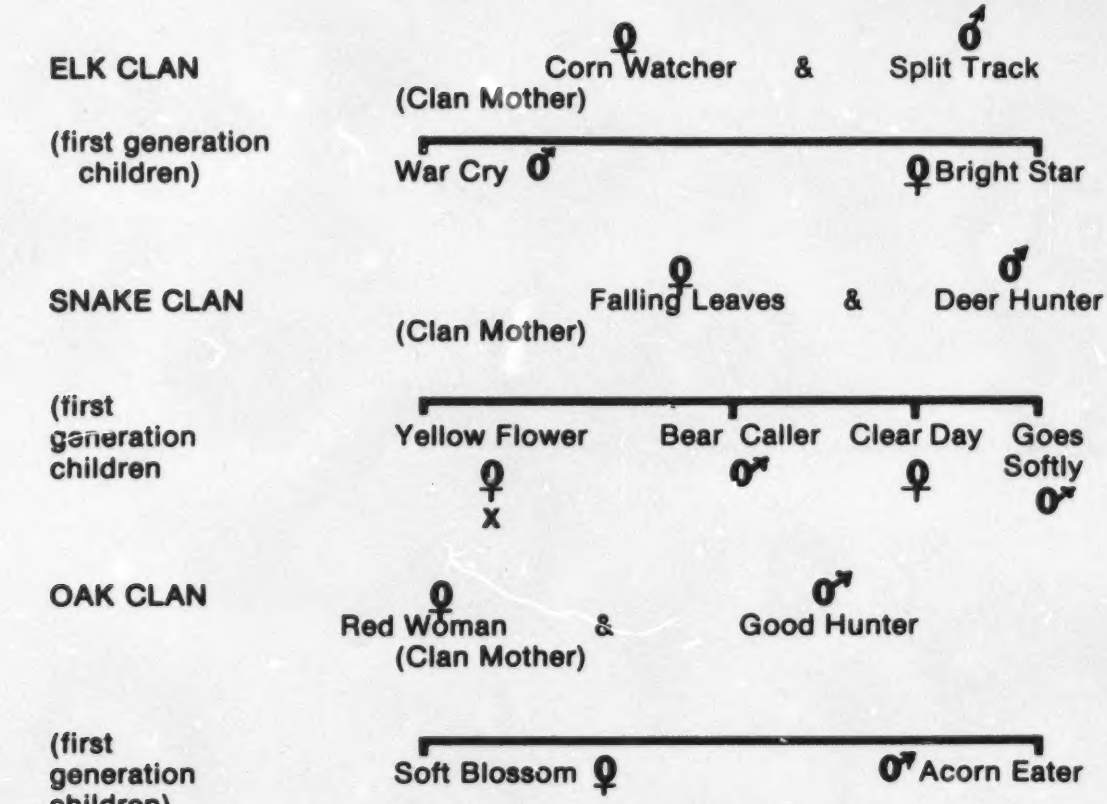
To help you read the diagrams, here is a code to follow:

♀ means woman ♂ means man X means killed by enemy

(E) = Elk Clan (S) = Snake Clan (O) = Oak Clan



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Now here's a CHALLENGE!!! Figure out what clan Shining Tassel belongs to. (Remember, Seneca people are not allowed to marry within their own clan. Look back at figure one and remember how matrilineal descent works.)

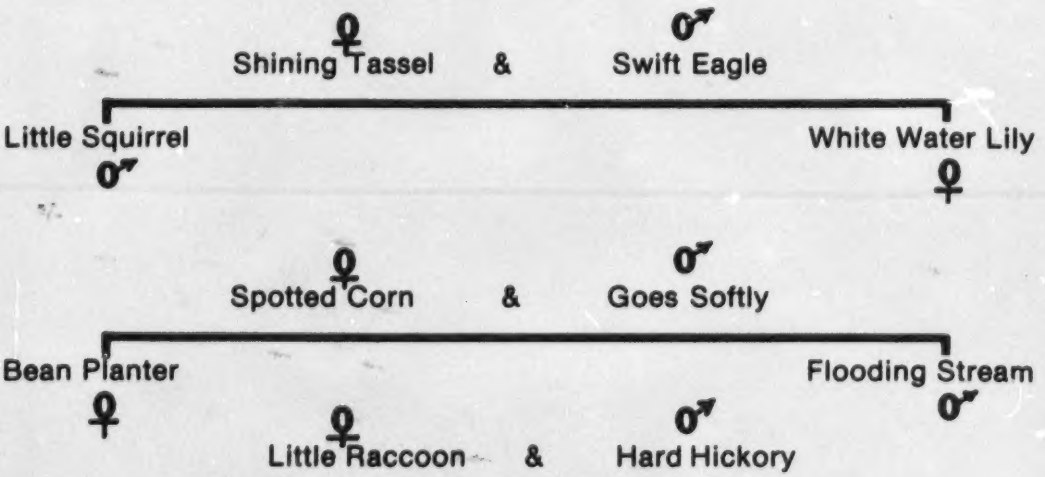
Shining Tassel is the daughter of Clear Day. Clear Day is the daughter of Falling Leaves who is the clan mother of the Snake Clan. Therefore, Shining Tassel belongs to the Snake Clan. Put an (S) by Shining Tassel's name in figure three.

Now follow this same type of thinking and figure out what clan Swift Eagle in figure 2 belongs to. What about Bean Planter in figure 3? Use E for the Elk Clan and use O for the Oak Clan, and S for the Snake Clan.

Do you think you have the idea? Good, because now you can prepare for the SUPER CHALLENGE. You'll need to trace everyone's clan in figure 2 and 3 and put a small circle with the clan's initial next to each person's name.

Figure 2 shows the families of the first generation. What generation are their children? That's right, *2nd generation children.*

Figure 3 shows the 3rd generation.



Now you are ready for the . . . . . .

SUPER CHALLENGE!!!!

List the people according to what longhouse they live in. (To get other clues to this puzzle, read on page 43 where it tells where a young Seneca man would live when he got married. Continue reading the rest of the paragraph and the following question that you answered there.) Now use those facts to fill up the longhouses!

SUPER CHALLENGE DIRECTIONS

Here's the master list of all the people in the village. Use this list to cross out the names after you put the people in their proper longhouse.

Acorn Eater
Bean Planter
Bear Caller
Bright Star
Clear Day
Corn Watcher
Deer Hunter
Falling Leaves
Flooding Stream
Fragrant Flower
Good Hunter
Goes Softly
Hard Hickory
Little Raccoon
Little Squirrel
Many Faces
Many Fish
Red Woman
Shining Tassel
Soft Blossom
Split Track
Spotted Corn
Swift Eagle
War Cry
White Water Lily
Yellow Flower

1. Start with the clan mothers and their husbands.
2. Now go to figure 3 and place the parents and children.
3. Finally, go to figure 2 and place the parents and the unmarried children.
4. Is there anyone left who has not been placed in a longhouse? Why?

ELK CLAN MEMBERS LONGHOUSE	OAK CLAN MEMBERS LONGHOUSE	SNAKE CLAN MEMBERS LONGHOUSE

Teacher's Answer Sheet

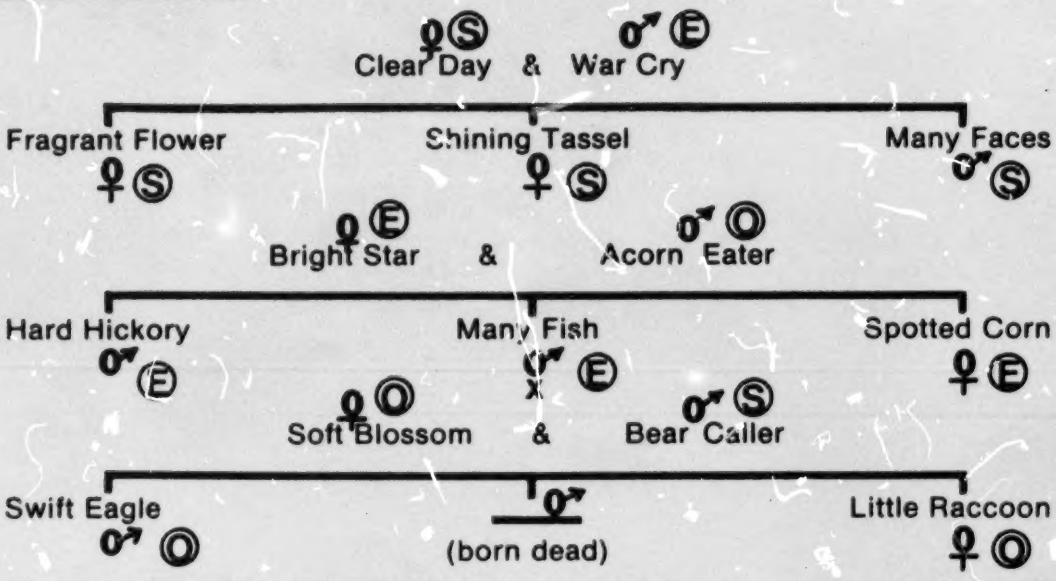
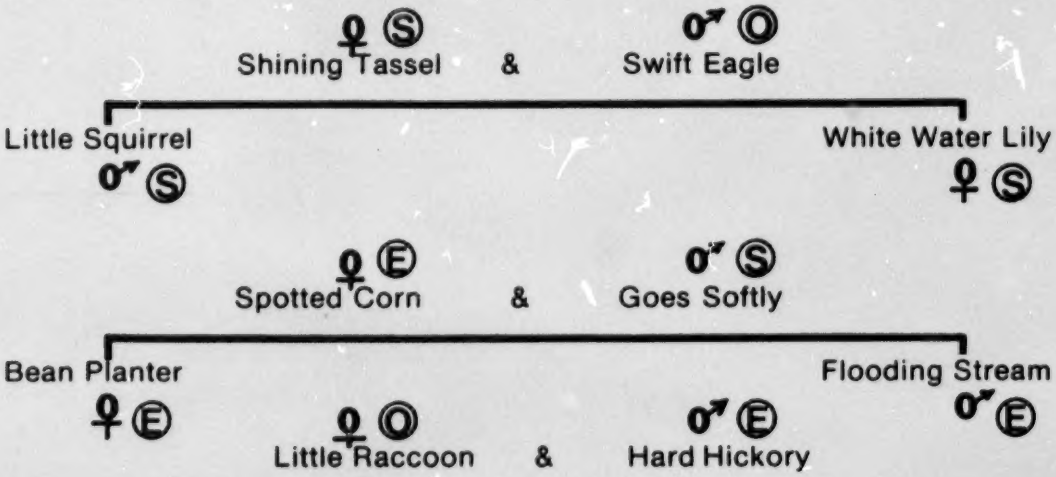


Figure 3 shows the 3rd generation.



ELK CLAN MEMBERS LONGHOUSE

Corn Watcher & Split Track
Spotted Corn & Goes Softly
Bean Planter
Flooding Stream
Bright Star & Acorn Eater

OAK CLAN MEMBERS LONGHOUSE

Red Woman & Good Hunter
Little Raccoon & Hard Hickory
Soft Blossom & Bear Caller

SNAKE CLAN MEMBERS LONGHOUSE

Falling Leaves & Deer Hunter
Shining Tassel & Swift Eagle
Little Squirrel
White Water Lily
Clear Day & War Cry
Many Faces
Fragrant Flower

Yes. Many Fish and Yellow Flower.
Because they were killed by enemies.

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Total of 24 people

Tribe	Climate	Water Supply	Location of Fields	Materials used for making tools	Tools used to prepare the soil	Method of field preparation	Approx. depth cornseed planted
Seneca	Wet, summer warm, winter cold	Abundant through rain, streams, lakes, etc.	Near streams	Wood, bones, antler, stone	Hoe	Trees girdled brush and weeds burned	4"
Pawnee	Moderate rain, sometimes dry, hot summer, cold winter	Mostly in rivers & streams	Along streams & river banks	Buffalo shoulder blades ligament from buffalo, wood antler	Hoe, digging wood or antler rakes	Weeds raked & burned	2"
Hopi	Hot and dry	Often low, occasional flooding	Near dry stream beds, cliff bases and sand dunes	Juniper, oak & ironwood hoe	Juniper rakes, wikya digging stick	Ground broken old stalks removed	9"-18"

MATRIX SUMMARY OF THE
WAYS THE SENECA, PAWNEE, AND HOPI
GROW AND PRESERVE CORN

	Common plants grown (show companion planting by underlining)	Ways of protecting young plants	Preservation methods	Storage structures	Implements used in grinding corn	Other uses for corn
Seneca	Corn Beans 3 Squash sisters melons pumpkin cucumbers tomatoes	Soaked in special liquid that poi-soned any pests that ate the corn seeds.	-Roasted -Dried -Braided & hung -Made into hominy	Barrels, Baskets Cribs underground pits hung in longouse	Wooden mortars and pestles made from logs and branches. Smaller stone mortars & pestles.	Ceremonial Use medicine corn stalk medicine bottle counting straws ropes masks dolls stuffing matts, trays, baskets moccasins, other
Pawnee	Corn beans pumpkin melons squash	Soaked corn seed in water or family medicine. Used brush to make fences around crops. Erected platforms at fields where people stood to scare away pests.	-Roasted -Dried -Braided & hung -Made into hominy	Leather parfleches underground pits	Mortars made from tree stumps Pestles - large wooden (4' tall) Small stone mortars & pestles.	Used in ceremonies "Nubbin ears" were fed to the horses to make them fat so they would stay warmer in the winter.
Hopi	Corn squash beans gourds apricots cotton	Built bush/branch fences around crops - heavy stones used to keep fence in place.	-Dried on roof tops -Roasted in pit ovens -Made into hominy	Adobe bins	Metates of various roughness - stone mano-mashing stones Small stone mortars and pestles.	Used in ceremonies medicine food wrapping game darts target

DISCUSSION QUESTIONS BASED ON THE MATRIX SUMMARY

1. What did the three tribes use to make their tools?

2. Why don't the Hopi remove trees in their fields?

3. How would you explain the fact that both the Pawnee and the Seneca plant their corn much nearer the surface of the soil than do the Hopi?

4. Why do the Seneca and Pawnee scrape their soils into mounds around their corn while the Hopi do not?

5. What are two advantages of the companion planting of corn, beans, and squash?

6. What was the Seneca's seed soaking medicine made of? Why did it work?

7. The Pawnee built a special platform by their fields. What were these used for?

8. Explain what the corn grinding implements of the three tribes were made of and why they were made from these materials.

9. Which tribe had to be especially careful to store large quantities of corn because their crops might fail completely? What conditions might cause such a crop failure?

DISCUSSION QUESTIONS BASED ON THE MATRIX SUMMARY

(Answers are in parentheses)

1. What did the three tribes use to make their tools? (They used things that were available in their environment.)

2. Why don't the Hopi remove trees in their fields? (There are few trees growing, those that do are useful for shade).

3. How would you explain the fact that both the Pawnee and Seneca plant their corn much nearer the surface of the soil than do the Hopi? (Both tribes have much more water in their environment than the Hopi and the types of corn they grow will not germinate if planted deeper. The Hopi corn is especially adapted for desert growth and needs deep planting.)

4. Why do the Seneca and Pawnee scrape their soil into mounds around their corn while the Hopi do not? (Mounds warm up faster than flat ground because it sticks up and more sunlight strikes it. The warmth will help the seeds germinate. The Hopi do not use mounds because they must plant deeply so that the seedling will be able to reach water. Using mounds would increase the already hot environment of the corn seed.)

5. What are two advantages of the companion planting of corn, beans, and squash? (The beans use the corn stalk for support to grow on. The squash plant shades out the weeds for both the beans and corn. The bean will add nitrogen to the soil where the other plants are growing. This type of planting conserves field space.)

6. What was the Seneca's seed soaking medicine made of? Why did it work? (It was made with water and juices of poisonous plants. A bird eating the seed soaked in this medicine would flutter dizzily across the field and often frighten away other birds.)

7. The Pawnee built a special platform by their fields. What were these used for? (They were used to stand on and scare away corn eating animals. They were also good places to stand under and enjoy the shade).

8. Explain what the corn grinding implements of the three tribes were made of and why they were made from these materials. (All three tribes used *whatever was available* in their environment to make their implements. The Seneca lived where trees grew in many places. The Pawnee could get trees along the rivers. So both tribes used wood--logs or stumps to make their large mortars and pestles. The Hopi live in an area where few trees grow. Stone in the most abundant material and that is what their metates and manos are made of. All three tribes use small stone mortars and pestles to grind small amounts of food. These are useful when traveling.)

9. Which tribe had to be especially careful to store large quantities of corn because their crops might fail completely? What conditions might cause such crop failure? (The Hopi always kept a one or two year supply of corn just in case their crops were completely destroyed. A combination of problems could ruin their crops--insect damage, flood covering fields with silt, eaten by hungry animals, or plants blown over by the wind. Drought was the most serious problem which could ruin all the crops.)

WHAT IS ORAL HISTORY?

What do each of you think *oral history* means? How many of you have listened to stories of your parents' childhoods, or your grandparents' accounts of the way it was when they were children? Or perhaps you have been told of an *ancestor* whom you have never seen, but who was looked up to by his or her *descendents* for some worthy deed done long before your time?

Oral history is anything that is passed on by word of mouth from one person or generation to the next, whether it be a humorous *anecdote* or a serious historical incident. In order to be passed on, it must have had some significance to the person passing it on or it would have been put aside and forgotten. In return, it might otherwise have some personal value to the person who remembered it after it was told, or again, it would have been forgotten. There are not enough books in the world to hold every person's family history, so this is done by the use of ORAL HISTORY.

WHAT IS THE PURPOSE OF ORAL HISTORY?

Among people who did not have a written language, histories must be told, *genealogies* must be kept, laws must be handed down. With no written language the spoken word is the only way. Every landmark has a story of its origin, every plant and animal has a story of its origin, every tribe has a story of its origin. All this is learned by listening to elders as they relate these stories around the fires. Elders are recognized and respected for their contributions and wisdom. The people listen and learn from them, for this is their kindergarten, grade school, high school, and college.

Some teachings were in the stories of the Animals who were considered to be the First People. Man of the Animal sagas teach us formal laws and their consequences if broken. Others teach moral ethics. There are legends that help teach about things like greediness, selfishness, or boastfulness. There are stories that explain how a lake got where it is or why a mountain was formed.

WHY ARE TRIBAL ELDERS IMPORTANT?

Oral history also provides us with important memories. Only the elders can remember how to properly conduct a ceremony. Each ceremony has a different purpose. Only the elders can explain tribal customs of long ago. Tribal customs are the everyday practices of a people, such as what they ate, where they gathered food, how they prepared food, what their houses looked like, and how they dressed. Elders also remember family customs. This includes things such as a family song, herbal potions, basket designs, dances, recipes, or an inherited family possession.

Tribal elders are important members of their community. They are highly esteemed in their culture because they are wise, experienced, patient, tolerant, knowledgeable, and skilled.

It was the elders who were and often are still responsible for child rearing. Long ago, elders were the decision makers of the tribe. They formed the governing bodies because they alone possessed the experience and wisdom to make important decisions. They acted as judges, lawyers, doctors, teachers, ministers, and politicians do in our society today. The elders, then, are an essential part of the Indian community, not only for what they do to enrich the present, but also for what they do to preserve the past and protect the future.

(Adapted from "Oral History and Indian Elders," written by Gerald B. Miller, Twana, former Director of the Skokomish Learning Center, Skokomish Indian Tribe. Yesterday's Children, United Indians of All Tribes Fdn., Daybreak Star Press, 1979.)

Oral History

VARIATION ON CORN HUSK DOLL STORY

It may be conveyed to the students that any story that has been passed on over a period of time by word of mouth undergoes many changes. This may be exemplified by having a certain short story whispered to one of the students and then passed around the room. By the time the last one whispers the story, it will have undergone certain changes. Another way to exemplify this to the students is to relate the second version of the Corn Husk story, "Why Corn Husk Dolls Have No Faces" to the class. This is equally accepted by the Senecas as the one told by Mrs. Snow. The version told from generation to generation has left us with *two* equally accepted stories; leaving us with a choice of which we hear as a result of which family we hear it from.

Answers to questions posed in the Conclusion

Assisting corn growth

What other ways did these tribes change or control parts of the environment to favor the growth of corn?

(planting near water, treating seeds, companion planting, crop rotation, field rotation, protecting seedlings)

Scales

1. **Permanent villages** (How much did the whole tribe travel from place to place?)

most HOPI SENECA PAWNEE least

2. **The amount of hunting and gathering they did. (Keep in mind the amount of game living in each tribe's environment.)**

most PAWNEE SENECA HOPI least

3. **How dependent were they on corn for survival?**

most HOPI SENECA PAWNEE least

Natural signs to farm by

The Seneca planted when the juneberry tree was in bloom. The Pawnee knew their corn would soon be ready for harvest when the seedpods of the milkweed plant grew fat. These signs told of that year's seasonal progressions. A modern calendar with dates already determined does not take into consideration seasonal changes like an early spring or cold fall.

CORNY GAMES

"Throwing The Wheel" a Hopi dart game

A game of skill throwing corncob darts at a wheel made of corn-husks.

Equipment---wheel of corn husks (Corn husks are formed into a tight wheel-shape by yarn or leather wrappings (7" in diam.) wound around the corn husks.)

a number of corncob darts (Each dart has two feathers at one end and a sharp point of hard wood (10¼ to 12¼" long) at the other end.)

"The wheel is thrown on the ground, and the darts, which are held so that the middle finger runs between the two feathers, are thrown at it. The darts are often also thrown into the air; when they descend, the pressure of the air causes them to rotate rapidly."

(Description adapted from Games of the North American Indians, by Stewart Culin, pg. 496.)

"Pokt inanane" a game of dexterity from the Zuni Tribe

A tossing/hitting game played with a shuttlecock or birdie made from corn husks.

Equipment---the player's flattened hand which is used as a paddle

at least 2 corn husk birdies (There are two different kinds.)

1. Green corn husks are wrapped into a package about 2" square. On the top two or more feathers are attached to the package.
2. Corn husks are neatly interlaced, forming a flat square about 1½", with 2 delicate feathers sticking out from the top.

Two or more people play the game. The players decide on a number or some goal they will be able to hit in a row. (Wagers are often made by Zuni players for 20, 50 and sometimes 100 throws or hits in a row!) Each player takes a turn trying to hit the corn husk birdie into the air with one flattened hand as many times as they can in hopes of making the game goal. In case of failure the other players try their skill, each person alternating in the game until one makes the game goal and becomes the winner.

Miwok (A Hopi Dice Game)

Number of players - 2 or more - always an even number making two teams

Playing Pieces Needed

15 grains of corn arranged in a straight up and down line connecting the teams Each grain is spaced 2 inches apart. This forms the playing board - the landing places are the spaces between the kernels.

4 flat-sided grains of corn that have the eye removed from one side. The hollow is then blackened with ink, charcoal, or something similar. These become the dice. The side with the black mark is called the face of the dice and the blank side is the bottom of the dice.

5 "counters" for each player. The counters can be any small article such as pebbles, twigs, shells, etc. as long as each player has a different type of marker.

Object of the game - capture counters of other players (by landing in spaces the other players are already in) and returning home without being caught.

To start the game, the first player on one team takes the four dice and throws them lightly on the ground, calling the number of black spots that are showing. It may be one, two, three, four, or in case of all the blank sides facing up, five. Starting from the bottom end of the row corn, on the right side, the first player advances up the number of spaces shown on the first throw. He rolls again and moves further up, the number of spots shown on his second throw. Thus, if the first throw is 2 and the second is 5, the player's counter would stop in the seventh space from the right. Each player *always* rolls twice on each turn.

The first player from the opposing team now throws the dice twice but moves down, from the top of the row of corn, on the left side. If more than two players are involved, the teams continue alternating, each throwing twice, entering at their proper end of the board (row of corn).

This procedure continues until it is the turn of the first player of the first team to roll a second turn. This player continues the advance of his counter from its position on the 7th space, with the object of going through all 14 spaces. If a player makes it through all 14 spaces without taking an adversary or being one, he enters again at his own end of the board, exactly as if the board were continuous.

However, the primary objective of every player is to fall into the space occupied by the counter of an adversary and so "capture" him or her. If a capture is made, the captor then plays backwards, toward his entering point and tries to move all the way out, carrying the captive with him.

If he passes out safely, without meanwhile being captured himself, the captured counter is dead, but the player's own counter, the "captor" is entered again, just as before, and in his turn. But if he is retaken before passing out of the board of play with his captive, both himself and his captive become the prey of the new captor and are carried in the opposite direction. This new captor may, in turn, be taken, losing himself and all the prey he has accumulated. Sometimes, if there are more than 2 players, this taking and retaking continues until the accumulated "captives" could number as many as 6 or 8 markers.

However many captives are involved, if they are finally successfully taken all the way off the board by a captor, they are separated from the captor's team markers and the captives are put aside. They are dead, out of the game.

No player loses a throw, for if he has lost his counter to a captor, he enters another, but no second marker can be entered into the game unless the first one is lost to a captor. Falling into a space occupied by a teammate's marker does not change the play of either of them, but an adversary would take both, should he throw and land on the space where they sit. Players never throw more than twice, under any circumstances, but if the first throw takes an opponent's counter, the second throw counts toward carrying him home.

If there are a large number of players, the game could go on from one to three hours, but in any event, it is ended when one side has no more counters to enter, that is, when the opposing team has "captured" all their markers.

In order to simplify the game, try it first with 2 players and only three markers per player. When all the rules and moves become clear by playing the simpler game, the more complex version should be much easier to accomplish.

A Hopi relay game *(adapted from a description by Albert Yava, a Tewa-Hopi man, given in his book, Big Falling Snow.)*

A relay race where players use their legs to throw a corncob.

Numbers of players---an even number divided into 2 sides

Equpiment

Equipment---two corncob tossing pieces (one for each side) A corncob is tied to one end of a string. The other end of the string is tied to a small stick forming a crosspiece.

Playing place---any large open area. Draw a starting line for both sides to stand behind.

Object of the game---work together to get the cob back to the starting place before the other side does.

Each side lines up behind their section of the starting line. The first players on each side put their crosspieces between their toes and lie down on their backs with their heels touching the starting line. Then each flips the corncob with their foot as far as they can over their heads. The 2nd player runs to the spot where the corncob has landed and lies down with the heels on the landing spot and flips the corncob over head as far as possible. This continues until all players except the last one on each side has had a turn. The last player then starts the corncob back in the other direction straight towards the starting line. The side that gets the corncob back to the starting line first is the winning side.

"Than-ka-la-wa" Standing Cob Game from the Zuni Tribe

A wagering game based on the skill of pitching at a corncob target.

Equipment---a piece of corncob with both ends cut straight across so it will stand up squarely

thin disks of stone (2¼-5" in diameter)

small valuable things to be used for betting (Zuni players use things like silver beads, turquoise, coins, etc.) These things are called *the stakes.*

Playing place---a large open area. The corncob is set up on one end on a flat spot of ground or on a flat stone disk. Then another disk is placed on tob of the corncob. The stakes are piled on the top disk.

Numbers of players---as many as wish to play. Each player should have a throwing disk.

Object of the game---throw the disk close enough to knock the stakes over and be the closest one to the fallen stakes.

The first player stands by the cob and throws a disk as far away as possible. The place the disk lands will mark the spot all players will have to stand when throwing at the cob with the stakes on it. Everyone takes turns throwing their disks at the target. Each player will mark the spots where their disks land. When someone finally knocks over the stakes the player who has landed closest to the fallen stakes wins all of the stakes.

Look at this list of words and see how many of them you can find hidden in the puzzle.

1. PARFLECHE
2. MORTARS
3. CORN HUSK DOLL
4. HORSE
5. PESTLES
6. PIKI
7. DIGGING STICK
8. CORN CRIB
9. METATES
10. MANOS

A	M	S	R	O	H	G	N	I	G	G	I	D
P	E	E	C	S	H	S	G	E	C	O	R	F
S	T	L	O	O	U	T	I	M	O	R	O	R
E	A	T	R	G	G	I	D	C	R	I	T	A
T	T	S	E	L	T	C	O	R	N	K	I	P
A	E	E	Z	U	A	K	S	U	H	U	K	S
T	Z	P	H	T	R	D	S	O	N	A	M	U
E	B	I	U	C	S	O	L	U	S	R	O	H
M	I	K	I	P	E	L	E	C	H	E	R	T
E	R	O	H	I	U	L	F	S	A	U	T	C
T	C	R	I	K	A	S	O	R	T	K	A	I
A	N	R	O	C	P	I	K	U	A	I	R	T
N	R	E	H	C	E	L	F	R	A	P	S	S

ACROSS

1. Most Hopi corn is planted in sand dunes. This is called _ _ _   _ _ _ _ _ _ _.

2. Tipis are used when Pawnee villages would go on _ _ _ _ _ _ _ _ _   _ _ _ _ _ _.

3. Seneca people use _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ to trace their family relations.

4 & 5. Seneca villages are located in the _ _ _ _ _ _ _ _ _ _ _ along some _ _ _ _ _ _ _ _ _ _ in New York.

6 & 7. Hopi _ _ _ _ _ _ _ _ _ are built on mesas in the Arizona _ _ _ _ _ _ _.

8. Hopi people are known as _ _ _ _ _ _ _ _ _ people.

DOWN

2 & 9. _ _ _ _ _ _ _ and _ _ _ _ _ are often planted together in Pawnee gardener's fields.

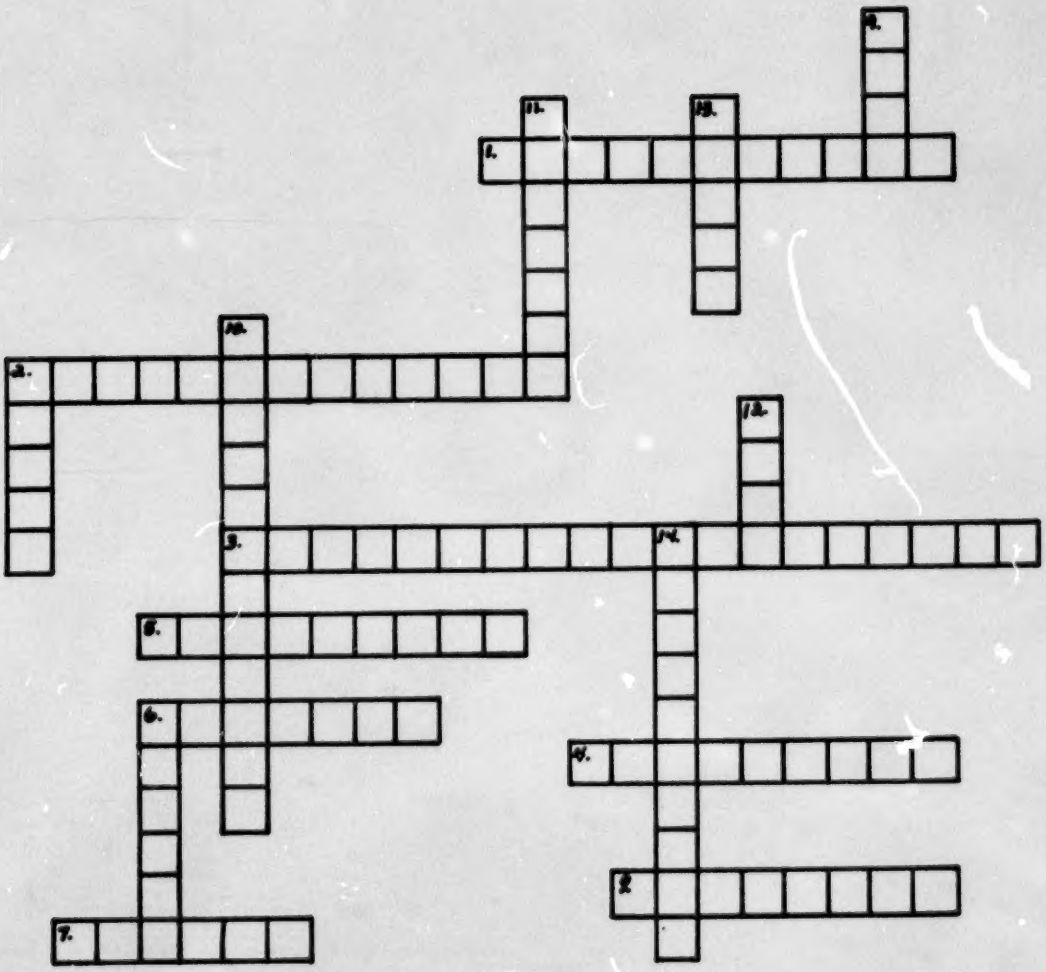
6. The Pawnee villages were located on the Platte River and on the _ _ _ _ _ _ _ of Nebraska.

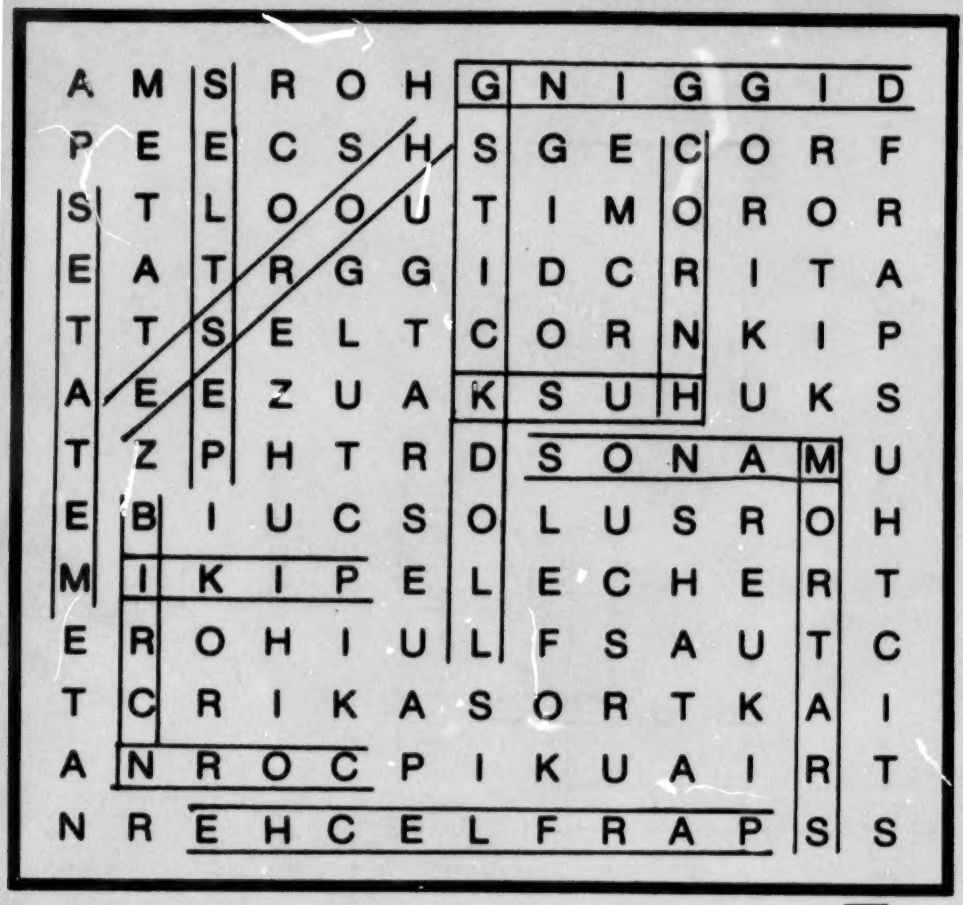
10. The head of Seneca clans are the _ _ _ _   _ _ _ _ _ _ _ _.

11. Horses pulled _ _ _ _ _ _ _ _ _ piled high with belongings or food as the Pawnee travelled after the buffalo.

12 & 13. Hopiland is _ _ _ _ country and _ _ _ _ _ _. is a precious resource.

14. _ _ _ _ _ _ _ _ _ _ _ were the traditional houses of the Seneca people.

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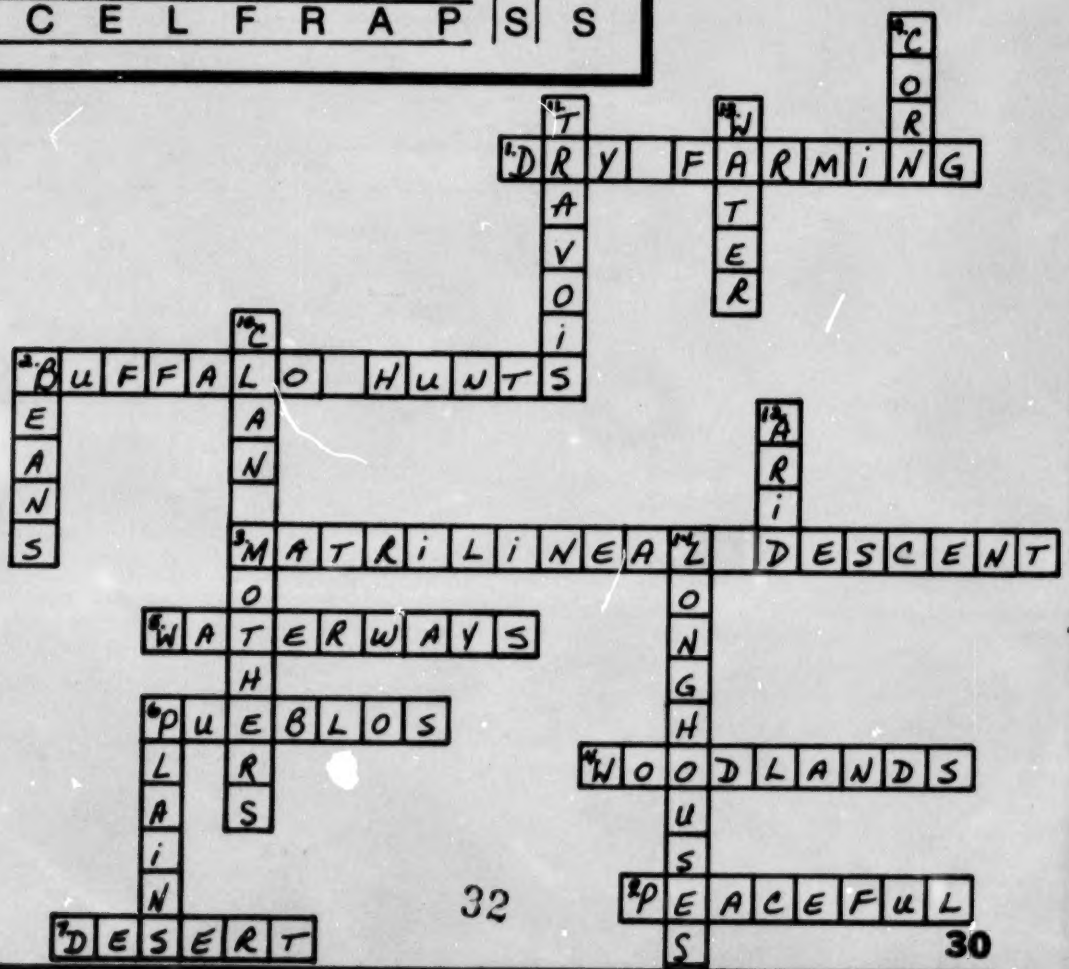
DRY FARMING
BUFFALO HUNTS
BEANS
CORN
CORN
WATER
CROP ROTATION
MATRILINEAL DESCENT
WATERWAYS
PUEBLOS
PLAINS
DESERT
LONGHOUSE
WOODLANDS
PEACEFUL